

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Colorado State University

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

COMMON WHEAT

'Sandy'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 11th day of March in the year of our Lord one thousand nine hundred and eighty-two.

Attest:

Kenneth H. Evers

Acting

Commissioner

Plant Variety Protection Office

Grain Division

Agricultural Marketing Service

John R. Block
Secretary of Agriculture



UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED

OMB NO. 40-R3822

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY CO 611265		1b. VARIETY NAME Sandy		FOR OFFICIAL USE ONLY PV NUMBER 8100154	
2. KIND NAME Wheat, Common		3. GENUS AND SPECIES NAME Triticum aestivum L.		FILING DATE 8/10/81	TIME 10:00 A.M. P.M.
4. FAMILY NAME (BOTANICAL) Gramineae		5. DATE OF DETERMINATION September 1, 1980		FEE RECEIVED \$ 500.00 \$ 250.00	DATE 8/10/81 11/16/81
6. NAME OF APPLICANT(S) Colorado State University		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) C3 Plant Sciences Bldg. Colorado State University Fort Collins, CO 80523		8. TELEPHONE AREA CODE AND NUMBER (303) 491-6483 (303) 491-6202	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) COLORADO STATE UNIVERSITY 10/20/81			10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION		11. DATE OF INCORPORATION
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Gerald H. Ellis and James Quick C3 Plant Sciences Bldg. 2135 Colorado State University 10/13/81 Fort Collins, CO 80523					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☒ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☒ YES ☐ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ YES ☐ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED?
☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

April 6, 1981
(DATE)

Gerald H. Ellis
(SIGNATURE OF APPLICANT)

May 13, 1981
(DATE)

James C. Quick
(SIGNATURE OF APPLICANT)

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13A. Exhibit A - Origin and Breeding History of the Variety

Wheat Variety - Sandy

Pedigree - Sonora 64A//Tezanos Pintos Precoz/Yaqui 54/4/Frontana//Kenya 58/
Newthatch/3/Norin 10/Brevor//Gabo 55B/5/Trapper/6/Centurk

The final crosses (three-way) were made in 1969 and 1970. The cross from which Sandy was selected was evaluated as a bulk in the F₂ through F₅ and spike rows were simultaneously grown in the F₃, F₄ and F₅. Based on the bulk hybrid performance, spike rows were selected, spikes within selected rows were chosen for the next generation of spike rows, and the remainder of the row was bulked to provide seed for the next generation of bulk yield testing. Sandy is an F₄-derived line bulked in 1976 and was first evaluated as a pure line in 1977. Sandy was evaluated in the Southern Regional Performance Nursery in 1978-79 and in the Colorado Variety trial in 1978-1981.

Sandy appeared stable and uniform through the seed increase program. No off-types were recorded in the seed increase program.

Exhibit B: Novelty Statement

Delete existing and replace with:

'Sandy' is most similar to 'Duke' and 'Centurk'; however, Sandy may be taller than Duke or Centurk under some environments. Under conditions of sandy soil or moisture stress, Sandy is superior to Duke and Centurk in stand establishment. The cause(s) of superior stand establishment are not known. Sandy differs from Duke and Centurk in leaf color; Sandy is very dark green, like Trapper, whereas Duke and Centurk are comparatively light green. Leaf width of Sandy is greater than Duke or Centurk and Sandy has laxer heads than Duke or Centurk. 'Duke' and 'Centurk' would be considered dense compared to 'Sandy.'

The phenol reaction for seed color is brown-black for 'Duke' and brown for Sandy.

10/27/81

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (TRITICUM SPP.)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S) Colorado State University		FOR OFFICIAL USE ONLY	
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) C3 Plant Sciences Building Colorado State University Fort Collins, CO 80523		PVPO NUMBER 8100154	VARIETY NAME OR TEMPORARY DESIGNATION Sandy

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g., 089 or 09) when number is either 99 or less or 9 or less.

1. KIND:

1 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

2 1 = SPRING 2 = WINTER 3 = OTHER (Specify) 2 1 = SOFT 2 = HARD 3 = OTHER (Specify)

2 1 = WHITE 2 = RED 3 = OTHER (Specify)

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:

254 FIRST FLOWERING 268 LAST FLOWERING

4. MATURITY (50% Flowering):

NO. OF DAYS EARLIER THAN 1 = ARTHUR 2 = SCOUT 3 = CHRIS
03 164-161 = 3 NO. OF DAYS LATER THAN 2 4 = LEMHI 5 = NUGAINES 6 = LEEDS

5. PLANT HEIGHT (From soil level to top of head):

101 CM. HIGH
 CM. TALLER THAN
03 CM. SHORTER THAN 2 1 = ARTHUR 2 = SCOUT 3 = CHRIS
4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING (See reverse):

3 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHOR COLOR:

1 1 = YELLOW 2 = PURPLE

8. STEM:

1 Anthocyanin: 1 = ABSENT 2 = PRESENT 2 Waxy bloom: 1 = ABSENT 2 = PRESENT
2 Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT 1 Internodes: 1 = HOLLOW 2 = SOLID
03 NO. OF NODES (Originating from node above ground). 25 CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

1 Anthocyanin: 1 = ABSENT 2 = PRESENT 2 Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

2 Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (Specify): 1 Flag leaf: 1 = NOT TWISTED 2 = TWISTED
1 Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT 2 Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT
14 MM. LEAF WIDTH (First leaf below flag leaf) 33 CM. LEAF LENGTH (First leaf below flag leaf): 4

11. HEAD:

☐ 1 Density: 1 = LAX 2 = DENSE
 ☐ 1 Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE
 4 = OTHER (Specify) _____

☐ 4 Awedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

☐ 1 Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED
 5 = BROWN 6 = BLACK 7 = OTHER (Specify) _____

☐ 0 ☐ 8 CM. LENGTH
 ☐ 1 ☐ 2 MM. WIDTH

12. GLUMES AT MATURITY:

☐ 2 Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.)
 3 = LONG (CA. 9 mm.)
 ☐ 2 Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.)
 3 = WIDE (CA. 4 mm.)

☐ 2 Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED
 4 = SQUARE 5 = ELEVATED 6 = APICULATE
 ☐ 3 Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

☐ 1 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

☐ 1 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

☐ 2 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

☐ 3 Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL
 ☐ 1 Cheek: 1 = ROUNDED 2 = ANGULAR

☐ 2 Brush: 1 = SHORT 2 = MEDIUM 3 = LONG
 ☐ 1 Brush: 1 = NOT COLLARED 2 = COLLARED

☐ 4 Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN
 4 = BROWN 5 = BLACK
 *Phenol reaction results will be reported later

☐ 3 Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

☐ 0 ☐ 6 ☐ 8 MM. LENGTH
 ☐ 0 ☐ 3 MM. WIDTH
 ☐ 3 ☐ 2 GM. PER 1000 SEEDS

17. SEED CREASE:

☐ 1 Width: 1 = 60% OR LESS OF KERNEL 'WINOKA'
 2 = 80% OR LESS OF KERNEL 'CHRIS'
 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'
 ☐ 1 Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT'
 2 = 35% OR LESS OF KERNEL 'CHRIS'
 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

☐ 1 STEM RUST (Races) B17 mixture
☐ 0 LEAF RUST (Races) _____
 ☐ 0 STRIPE RUST (Races) _____
 ☐ 0 LOOSE SMUT

☐ 1 POWDERY MILDEW
 ☐ 0 BUNT
 ☐ 0 OTHER (Specify) _____

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

☐ 0 SAWFLY
 ☐ 0 APHID (Bydv.)
 ☐ 0 GREEN BUG
 ☐ 0 CEREAL LEAF BEETLE

☐ OTHER (Specify) _____
 HESSIAN FLY RACES:
 ☐ GP
 ☐ A
 ☐ B
 ☐ C
 ☐ D
 ☐ E
 ☐ F
 ☐ G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Scout 66	Seed size	Scout 66
Leaf size	Trapper	Seed shape	Centurk
Leaf color	Trapper	Coleoptile elongation	Scout 66
Leaf carriage	Centurk	Seedling pigmentation	Scout 66

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

- (a) L.W. Briggles and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.
- (b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

13D. Exhibit D - Additional Description of the Variety

Summary Novelty Statement

Crop - Hard red winter wheat (Triticum aestivum L.)

Variety - Sandy

General Information - Colorado State University has released Sandy, a standard height variety adapted to the high plains. Sandy is most similar to Duke, but is taller and has a higher yield potential in some environments. Sandy combines the high yield potential of its semidwarf parents with the ability to withstand moisture stress during emergence and early seedling growth from its standard height parent.

Variety Description - Sandy has outyielded ($P < .05$) Centurk at some locations some years. Sandy has outyielded Vona in some nurseries when fall moisture stress was evident. Sandy is 5-10 cm ($P < .05$) taller than Centurk, depending on the environment. Sandy is taller than Duke and is as tall as Scout in some environments. Statistically, Sandy can be distinguished from Centurk in plant height but not from Duke or Scout. Sandy and Centurk are similar in heading date. Sandy has a longer mixing time than Centurk. The "yellow berry" seed character has been observed in seed samples of both Sandy and Centurk when grown at low soil nitrate locations. The leaf color of Sandy is very dark green like Trapper, whereas Centurk is comparatively lighter green. These color determinations were not made in a standardized manner.

Table 1. Nursery Yield Results 1975 in bu/acre

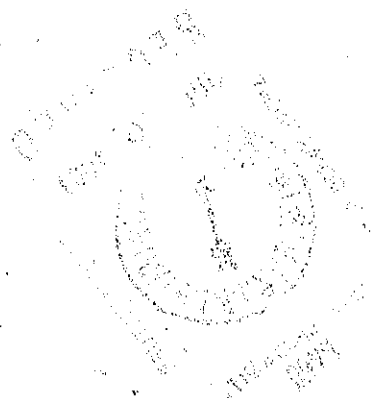
<u>Variety</u>	<u>CO Number</u>	<u>Location</u>		<u>Average</u>
		<u>Akron</u>	<u>Julesburg</u>	
Sandy	C0611265	48.5	62.2	55.4
Centurk	--	41.5	52.9	47.2

Values are significantly different at the $P < .05$ level

Table 2. Plant Height 1980 at Fort Collins

<u>Variety</u>	<u>CO Number</u>	<u>Inches</u>
Sandy	C0611265	39.7
Centurk	--	38.8

Values are significantly different at the $P < .05$ level



APPLICATION NO. 8100154

VARIETY NAME Sandy

Test Results Based on the American Association of Cereal Chemists Approved Method (AACC)

1. Straight dough ~~development time ratio~~ *Mixing Tolerance Index*

Farino graph 15

Dough-Mixer -

2.

Baking Ingredients	Arrival time-- minutes	Peak time	Stability-- minutes	Curve center height B.U.	Height at end B.U.
Yeast					
No rest	2.75	8.50	16-50	-	-
4 hr. rest					

3. Protein percentage 13.7 (14% H₂O)